# 13. apply() function

Used to apply a function along an axis(rows or columns) of the DataFrame.
For a Series, `apply()` applies the function to each element.

Syntax:

```
DataFrameName.apply(func, axis=0, raw=False, result_type=None, args=(),
**kwds)
```

- `func` : the function to apply
- `apply` : Axis along which the function is applied
  `0` for columns, `1` for rows
  Default is `0` .
- `raw` : Determines if the function should receive `ndarray` objects instead of pandas objects.
  Default is `False` .
- `result_type` : Determines the type of the result.
  1. expand
  2. reduce
  3. broadcast
- `args` and `**kwds` : Additional arguments and keywords to pass to the function.

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Ex:

```
import pandas as pd
import numpy as np

# Sample DataFrame
df = pd.DataFrame({
    'A': [1, 2, 3, 4],
    'B': [10, 20, 30, 40]
})
```

1. Applying a function to each column

```
df_applied = df.apply(np.sqrt)
print(df_applied)
```

```
          A         B
0  1.000000  3.162278
1  1.414214  4.472136
2  1.732051  5.477226
3  2.000000  6.324555
```

2. Applying a function to each row

```
df_applied_row = df.apply(lambda x: x.max() - x.min(), axis=1)
print(df_applied_row)
```

```
0     9
1    18
2    27
3    36
dtype: int64
```